# DoD Technology of Relevance to Planetary Defense

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The 1994 DoD Clementine mission met or exceeded its planned objectives, except one. Due to a software error it was unable to complete the demanding flyby of the NEO 1620 Geographos. This capability must be demonstrated to allow exploration of a range of NEOs. The knowledge of physical properties gained by such exploration is a prerequisite to understanding any proposed deflection method. The Clementine spacecraft is still operating in interplanetary space, the first DoD spacecraft to do so. This demonstrates that advanced lightweight technology can perform at the distances and mission durations required for NEO exploration. Plans and technology development for a follow-on to Clementine are underway. It now appears feasible to develop a smaller (under 100 kg), cheaper (under $20M), follow-on spacecraft to flight qualify current (late 1990's) technology. The exploration of NEOs remains a challenging test environment for the flight qualification of the next generation of advanced space technology under development by the DoD. To fully understand the detailed properties of a diverse range of NEOs a low cost capable spacecraft capability is needed. The current status of the Clementine spacecraft will be discussed along with a review of on-going technology development and testing programs for the next generation of advanced lightweight DoD space technology. A series of low cost NEO missions have been investigated and will be discussed. These could include NEO flyby and hard impact missions launched as piggyback payloads or as dedicated payloads.